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Default risk in housing credit: the case of Portugal

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Master in Finance

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Acknowledgements

The completion of this dissertation marks the culmination of a journey that, although challenging, was enriching and rewarding. This work would not be possible without the support and encouragement of some people, to whom I would like to express my deepest appreciation.

First and foremost, I extend my sincere thanks to my supervisor, Professor José Carlos Dias, for his availability, knowledge and advices during this process. His insightful recommendations and assistance were crucial to the development of this paper and my academic growth.

To my friends, thank you for all the moments of distraction and for always being by my side.

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My heartfelt gratitude to each of you. This work is also the consequence of your positivity and motivation.

Resumo

Esta dissertação analisa o risco de incumprimento no crédito à habitação, particularmente do sistema bancário português. Este tipo de contrato desempenha um papel crucial, tanto para o funcionamento da economia, como na ótica das famílias. Por um lado, representa um peso muito considerável nos balanços das instituições de crédito e, por outro, constitui, para a grande maioria das pessoas, o maior investimento das suas vidas. A recente crise financeira global, bem como a da dívida soberana, alertaram os intervenientes de crédito para a relação de proximidade que pode existir entre o mercado imobiliário e o setor financeiro. Estas situações fizeram disparar os níveis de incumprimento e sublinharam a importância da existência de mecanismos de gestão de risco, com o intuito de mitigar o impacto. Num país com elevada exposição ao setor dos particulares, sobretudo no período marcado pela instabilidade que vivemos, torna-se ainda mais relevante estudar o risco de incumprimento desta modalidade de crédito e os fatores associados a uma maior probabilidade do mesmo. Desta forma, é possível monitorizar as perspetivas de evolução do risco de crédito e as suas consequências para a estabilidade do sistema financeiro.

Palavras-chave: Crédito à habitação; risco de crédito; incumprimento

Classificação JEL: E51, G21.

Abstract

This dissertation analyzes the default risk in mortgage loans, particularly in the Portuguese banking system. This form of contract plays a crucial role, both for the functioning of the economy and from the point of view of families. On the one hand, it represents a very considerable weight in the balance sheets of credit institutions and, on the other hand, for the vast majority of people, it is the largest investment of their lives. The recent global financial crisis, as well as the sovereign debt crisis, have alerted credit players to the close relationship that can exist between the real estate market and the financial sector. These circumstances prompted default levels to increase, emphasizing the significance of risk management mechanisms to mitigate the impact. It is especially crucial to research the risk of default in this type of agreement and the characteristics linked to a higher probability of default in a country with a strong exposure to the private sector, particularly during this unstable period. In this way, it is possible to monitor the outlook for credit risk and its consequences for the stability of the financial system.

Keywords: Housing credit; credit risk; default

JEL Classification: E51, G21.

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List of Abbreviations

ESIS - European Standardized Information Sheet

IMF - Financial Markets Information (Informação de Mercados Financeiros)

IMT - Municipal Property Transfer Tax (Imposto Municipal sobre as Transmissões Onerosade Imóveis)

INE - Statistical National Institute (Instituto Nacional de Estatística)

ISEG - Higher institute of Economics and Management (Instituto Superior de Economia e Gestão)

NPL - Non-Performing Loan

PARI - Default Risk Action Plan (Plano de Ação para o Risco de Incumprimento)

PERSI - Extrajudicial Regularization of Default Situations (Procedimento Extrajudicial de Regularização de Situações de Incumprimento)

RSP - Retirement Savings Plan

Chapter 1 – Introduction

1.1 Relevance of the topic

The current scenario, characterized primarily by rising interest rates, is strongly driven by the persistence of geopolitical tensions (conflict between Russia and Ukraine and in the Middle East), as well as inflationary pressures and increased disruption in the international financial markets, particularly in the United States of America and Switzerland banks. The invasion of Ukraine by the Russian Federation led to a sudden shift in the financial and economic landscape, exacerbating supply chain interruptions, raising logistical challenges, and resulting in historic levels of inflation. The prices of energy and some raw materials skyrocketed, triggering an inflationary spiral that impacted the majority of the world's economy. In order to reverse the upward trend in inflation and prevent inflationary expectations from losing their anchor, central banks were compelled to adopt more incisive monetary policies, namely by raising interest rates.

The likelihood of default in the loan portfolios of banking systems is heightened by this backdrop, especially for those with a large proportion of variable interest rate credit agreements, such as the Portuguese one. In these cases, the increase in interest rates leads to a rise in debt charges in the short term, implying an additional effort to meet financial commitments and, especially for the most vulnerable clients, may be sufficient to render them unable to do so. The fluctuation in reference indexes impacted both new and existing credit agreements. Credit players are thus very dependent on the economic climate since this greatly influences credit activity.

In Portugal, housing credit accounted for almost 77% of the total amount of loans granted in 2023, reflecting a considerable weight on the balance sheets of credit institutions (BPstat, 2023). The main activity of the banking sector is the granting of credit, having a significant impact on maximizing profits. The likelihood of default risk in the credit portfolio is associated with an increase in the value recorded in provisions and impairment, implying greater financial losses. As properties are provided as collateral when conceding credit, a drop in their value has significant macroeconomic implications. Therefore, variability of housing prices also plays a decisive role in the bank risk and profitability. Nevertheless, given the transversal importance of this type of credit in the banking business and the possibility of contagion amongst financial institutions, the risk that the entities incur cannot be discarded.

Aside from the impact on banking activity (and the financial system in general), this type of contract has an immeasurable social dimension, constituting a sizable portion of families' budgets and representing the largest investment of their lives for the vast majority. Although credit facilitates the purchase of housing, it also entails risk for borrowers. When purchasing a property, a financial pledge is made in favor of the bank to ensure proper compliance with the debt service. Thus, an appropriate valuation is assigned to the asset, incorporating the risk of devaluation, the costs associated with selling and maintenance, and the time required to complete the sale. In the event of default, in addition to being left without the house, debtors are also responsible for meeting the remainder of the debt after the sale of the collateral.

1.2 Dissertation objective

Credit default is identified by the Bank of Portugal as one of the main risks to financial stability (Financial Stability Report May 2023). Therefore, in a country where exposure to the private sector is so high, the assessment and monitoring of the prospects for the evolution of credit risk must be a central theme.

Having stated that, the premise of this dissertation involves the expectation of an increase in defaults due to the rising interest rates, and consequent decline in families purchasing power because of rising inflation. With housing credit playing such a crucial role in people's lives and in the economy of a country, we intend to analyze, in the particular case of Portugal, the evolution of the real estate market in recent years, the non-compliance with this type of contract at the current adverse time and the determinants influencing it. Additionally, the presentation of strategies and regulations in force that aim to mitigate risks for both parties to the contract will be discussed.

1.3 Structure and organization

This paper is divided into 8 chapters. The first one provides an introduction and a general contextualization of the topic, as well as the presentation of the premise, relevance and objective of the dissertation. The second gives an overview of credit reality in Portugal in recent years and the perspective of some relevant authors on the subject. Then, we move on to the methodology and data, which describes the sources and the framing process (chapter 3). The fourth chapter focuses on the real estate market in Portugal and the determinants that influence housing prices. In turn, the next chapter discusses the act of granting credit, emphasizing the importance of this function in the economy and describing this complex process. Subsequently, the following section presents the factors associated with default. Chapter 7 focuses on the measures to support individuals with housing in a context of rising interest rates. Finally, the last one brings together the main issues covered and provides a summary of the conclusions.

Chapter 2 – Review of literature

The expansion of the Portuguese economy, which began in the 1990s, was marked by increased credit availability as a result of large capital flows and falling interest rates. These conditions materialized the reduced perception of risk and expectations of future development with Portugal's accession to the euro. Based on this optimism that characterized expansionary eras, financial institutions have a greater tendency to overlook borrowers' ability to pay. Lending expanded exponentially, causing indebtedness, which was at 20% in 1990, to reach 66% of families' disposable income at the end of 1998 (Marques and Frade, 2017). According to Minsky (1992), the boost in debt produced by the euphoria of periods of social stability plays a strong role in creating the basis for an economic and financial disaster. This occurs as a result of economic agents allowing financial leverage not sustained by economic development. Thus, with the rise in demand due to speculative nature (DeFusco et al. (2022) have documented that the speed with which houses were sold and bought increased significantly during the boom), forms the foundation to create a real estate bubble. This growth on the demand side causes market prices to rise sharply, which encourages the construction of more housing, eventually resulting in excess supply and lack of buyers. When this point is reached, the bubble bursts and a drop in house prices follows. This considerable intensification on the indebtedness levels was determined by an acceleration in spending, which was only partially accompanied by the growth in disposable income. This combination of factors resulted in a low savings rate, further boosted the use of credit, notably for housing purchases. Given its relative weight in banking activity and consumer debt, the real estate market began to have a significant social impact during this period. Farinha and Costa (2012) concluded the level of debt of Portuguese families was one of the highest in the Eurozone.

The economic trajectory halted in the start of the 2000s, and the forecasts proved to be inaccurate. In the following years, economic prosperity was moderate, productivity remained stable, and investment fell, causing external imbalances to accumulate to unprecedented levels. Portugal's entrance into the European Union's single currency in 1999 contributed to eliminate the exchange rate risk in reference to the other Member States. This accession process assisted to the stabilization of inflation and, as a result, interest rates fell, boosting the increase in private credit for purchasing housing. According to Brown et al. (2010), household mortgage debt nearly doubled between 2000 and 2007, and, unlike previous periods, this was not offset by cutbacks in other household spending. Against this backdrop, the financial crisis or subprime crisis erupted in 2007, which many economists regard as the most devastating since the Great Depression (1929). Several factors contributed to this outcome, including excess global liquidity and deregulation in terms of the financial products traded. One of the major drivers was the collapse of Lehman Brothers, which resulted from subprime customers' inability to pay their mortgages during the housing bubble. The bankruptcy of a bank considered "too big to fail" served as a warning that the financial system was not being properly monitored and there were no mechanisms in place to prevent the same mistake from being repeated in the future. Furthermore, it demonstrated the intrinsic relationship that can exist between the real estate industry and the financial sector, and how the former can be a real catalyst for global financial crises.

Specifically focusing on the European Union, banking regulation before the outbreak of the crisis did not require banks to have sufficient minimum equity capital to cope with the risks taken. In order to address this weakness, the Basel Accords were developed. The Basel II agreement is built on three main pillars: mandatory minimum funding requirements, which allow risk to be measured; risk supervision and management processes, to monitor and prevent the incidence of risks; and market discipline, which includes innovative exigencies for the disclosure of information by institutions to the public, with the aim of increasing transparency and knowledge. Furthermore, Basel III tightened the definition of own funds and additional criteria, as well as establishing internationally harmonized liquidity standards (Bank of Portugal, n.d.). In fact, they make the prudential regime more sensitive to risk and improve the banking sector's resilience to absorb shocks caused by adverse economic and financial scenarios.

The Portuguese banking system was heavily hit, as the ease with which loans were granted did not keep pace with economic expansion and the risk of default was underestimated. Lenders believed housing prices would continue to escalate, therefore carefully selecting the borrowers became less important, since the expected value of the guarantees would protect their position as creditors. However, what actually occurred was the opposite which, along with an increase in overdue housing credit (*Figure 2.1 - Ratio of overdue housing credit in Portugal*), impacted the stability of the financial markets.

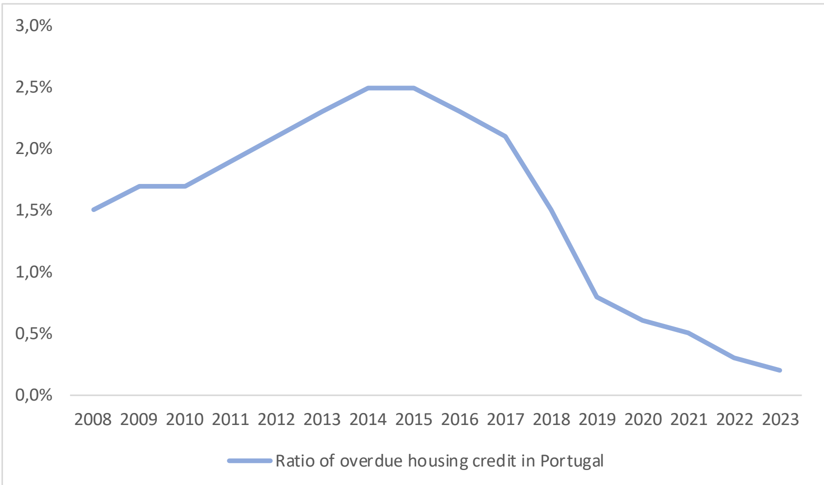

Figure 2.1 - Ratio of overdue housing credit in Portugal
Source: BPstat

This situation arose since people held back their consumption because of the uncertainty that marked this period. As demand fell and the worth of goods is set by the market (Adam Smith's law of supply and demand, 1776), property prices followed suit, weakening the real estate sector. Circumstances were also unfavorable from the perspective of companies, boosting unemployment even further. In Portugal, the most severe recession was felt between 2010 and 2013, coinciding with the sovereign debt crisis in the European Union. These years were defined by falling household incomes, low expectations about the future of the labor sector, difficulties in the financing conditions of the economy, uncertainty about the fiscal policy measures to be implemented and the level of adjustment of the budgetary imbalance. The Bank of Portugal, as the national macroprudential authority, adopted some measures to prevent, mitigate and reduce risks to financial stability while also strengthening the resilience of the financial sector. In the case of new housing credit contracts, limits were imposed on the ratio between the loan amount and the value of the property used as collateral (Loan-To-Value ratio), on the ratio between the total amount of monthly installments to all loans held by the borrowers and their monthly income after taxes (Debt Service-To-Income ratio) and on the loan maturity. As a result, credit granting criteria become more prudent, ensuring that households obtain sustainable financing and minimizing the likelihood of default.

The Portuguese economy has been improving, in line with the economic recovery of the Eurozone. Banks made considerable progress in the following years, displaying stronger resilience in comparison to the pre-crisis era (Portuguese Banking Association, 2019). In 2020, with the emergence of the COVID-19 pandemic, a moratorium regime was established applicable to mortgage-backed housing credit contracts and other mortgage credit celebrated with consumers (Decree-Law No. 10-J/2020). Under this measure, it was possible to select whether to suspend both capital repayment and interest payment or just the first, continuing to pay the loan's interest. Customers who adhered to the moratorium until September 30, 2020, were able to benefit from this rule until September 30, 2021. In turn, those who requested between October and March 31, 2021, were entitled to remain covered by this exception until December 31, 2021. Thus, many families and companies resorted to credit moratoriums, lines of credit and other forms of assistance to prevent default. Subsequently, with the invasion of Ukraine by the Russian Federation, rising energy costs and disruption in supply chains provided the basis for an inflationary pressure scenario. Geopolitical risks are typically associated with a weakening of business and household confidence, harming the global economy.

Indebtedness can lead to default, defined as the failure of a debtor to pay their commitments on time. Financial institutions consider there to be default after three overdue installments and a definitive default when the possibilities for renegotiation are exhausted and legal action is initiated. Housing loans historically have fewer defaults since the last thing consumers want is to lose their home, which serves as collateral (Phillips and Vanderhoff, 2004). Costa (2012) carried out a study that estimated the probability of families' default, considering economic and sociodemographic characteristics, as well as the presence of shocks adversely affecting their financial situations. As expected, low-income levels, high expenses, and unemployment are all closely tied to defaults. The characteristics related to a higher chance of default will be detailed further in *Chapter 6 – Factors related to a greater probability of default.* In fact, bank portfolios should be constructed with varied levels of risk to improve management since assets with low credit risk are associated with a reduced expected return, while higher expected return assets have a greater probability of default. Roszbach (2004) believe that, as the main aim for a lender is to maximize profits, this is not necessarily related to risk. The same author argued a higher-risk loan can be profitable even if the lender is certain that it will default. However, researchers, on average, believe subprime borrowers are riskier due to having an impaired or limited credit history, as well as the interconnectivity of the financial system. According to Carvalho (2009), banks are able to boost profits, without giving up the opportunities assuming risk provides. This author also claims the risk management process is continuous and only concludes after the debt has been settled in full, therefore accompanying the whole cycle of credit issuance.

Chapter 3 – Methodology and data

3.1 Methodology

The main focus of the methodology used is centered on gathering as much useful information as possible, in order to be able to cover the points proposed in preparing this dissertation. As the preceding chapter demonstrates, the topic of the risk of default in housing credit has already been the subject of several researchers and news articles, as it is such a pertinent theme. To add value to what has been already done, my objective for this thesis is to build a solid foundation of knowledge, including the reality of this type of credit that spans the last 15 years, covering not only the period of crisis but also the most recent events and their effects on the economy. Hence, extensive bibliographical research was carried out. To obtain theoretical support, we mainly resorted to books, regulation, other dissertations, articles and news.

As previously mentioned, this work was based on the expectation of understanding how the increase in reference interest rates mostly felt in 2023 is related to the level of default by debtors. Additionally, it is also intended to understand what the main factors and characteristics are impacting the default risk associated with mortgage loans. To achieve this, the reality of the real estate market, the act of granting credit (which includes risk assessment, contract interest rates, non-performing loans, and inherent regulation), customer characteristics associated with a greater probability of default, and the risk management measures implemented were covered in the analysis.

3.2 Data

Carrying out a study on housing credit requires a massive set of data, in order to reflect the results of the various banks and, consequently, the reality of the country, in this case Portugal. For this reason, the quantitative data used throughout the dissertation were mostly provided by reference entities in this field, namely European Central Bank, BPstat (Bank of Portugal platform), PORDATA, INE, and Idealista (website that provides real estate sector data). The main variables are interest rates on housing loans, Euribor history, number of loans granted per year and total, housing price index, inflation, and non-productive loans. After this collection, we proceeded with its analysis and treatment, by calculating annual averages, and converting the values to percentages, when the data was not previously in this format. Lastly, we created graphs and tables to ease the readers interpretation. Additionally, we also grounded on studies and articles carried out within the curricular and research context to gather qualitative data, specifically on the determinants and characteristics affecting the risk of default and the history of the real estate market, as well as credit in Portugal.

The historical period we intend to analyze encompasses the years between 2008 and 2023, for the purpose of including the global financial and the sovereign crisis, as well as the current conditions, marked by the increase in interest rates and inflation. During the data collection, certain constraints were encountered, including the sample's inability to access a longer period of variable dates, partly due to the limitation imposed by the competent authorities on the availability of information. In these cases, emphasis was placed on the most recent information, when the period was sufficiently comprehensive to include the data and changes relevant to the study.

Chapter 4 – Real estate market in Portugal

As housing is the main asset in the investment portfolio of the typical household and the acquisition of which is mostly financed using credit, the fluctuation in its value has repercussions for families' well-being and credit granting. The market risk inherent in mortgage credit refers to the probability of the real estate sector evolving unfavorably when the property is sold. Therefore, the longer the loan term, the greater the associated market risk, as changes in real estate become more unpredictable. Unexpected events in this context result in consequences for economic growth and financial stability, since they condition individuals' consumption and investment decisions.

The positive yield and reduced correlation with the securities market, combined with simpler access to the business, have prompted several investors to raise the proportion of real estate assets in their portfolios (Tsatsaronis & Zhu, 2004). The consistency of the overall return, which corresponds to its appreciation over time and the income generated (for example, through renting), qualifies it as one of the best long-term investments (Jordà et al., 2017). Real estate values are influenced by both macro and microeconomic factors, affecting many parts of the economy. At the macro level, the real estate market is linked to the financial sector (Mavrodiy, 2005). Furthermore, the development of the former coincides to be a leading predictor of the general business cycle (Wang, 2003). From a micro perspective, it can be viewed in the framework of consumer behavior analysis.

Between the 1990s and the financial crisis, the home prices in Portugal were remarkably stable. On the contrary, house values drop following the Great Recession of 2008, owing to the repression of investment and consumption characterizing this period. However, in the subsequent years, particularly from 2013 onwards, prices in the country have risen dramatically. Prices similar to the pre-crisis levels were reached in 2017 (Rodrigues, 2022). Analyzing the House Price Index in 2023, which reflects the evolution of prices for family accommodation purchased in the Portuguese residential sector, a total growth of 8.2% was observed compared to the previous year (BPstat, 2023). Segmenting by category, the rate of change in new residences was 6.6%, while the price of existing ones climbed by 8.7%. These values represent a slowdown, since in 2022 the total growth reached 12.6%, in new homes 8.7% and in existing 13.9%. It is estimated that factors such as political and legislative instability, as well as the increase in interest rates on loans and the loss of purchasing power are the main culprits. *Figure 4.1 - House price index* depicts the value of house price index over the last 15 years.

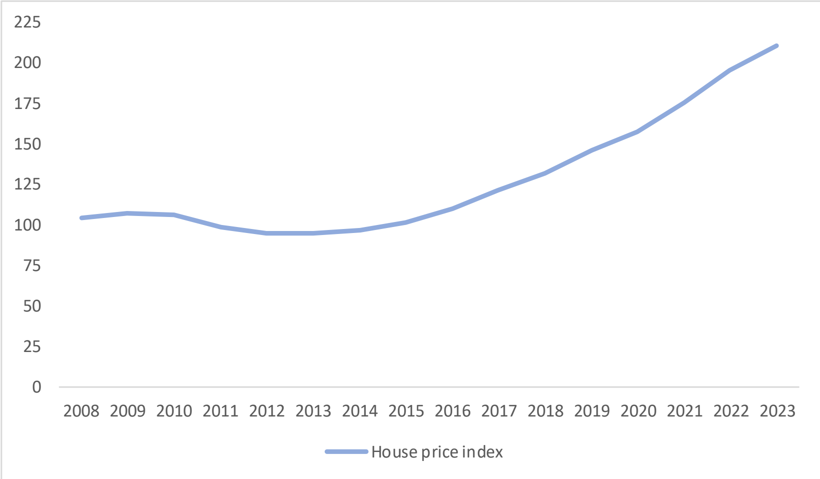

Figure 4.1 - House price index
Source: BPstat

When examining the House Price Index of the different nations in the Euro Area in the fourth quarter of 2023, it is possible to deduce that Portugal, presenting a growth of 7.8% compared to the previous year, contrasts sharply with the average of the countries, which fall by 1.1%. In turn, the same variation considering the average of the Member States of the European Union had a reduced growth of around 0.2%. As a result, it is feasible to conclude Portugal is in a very unfavorable position, presenting one of the largest rates. The table with the variations for several countries can be found in *Appendix 1 – Annual rate of change in house prices in the euro area.* According to data provided by the National Statistics Institute (INE), in 2023 as a whole, around 136 thousand properties were transacted, totaling a value of 28 billion euros. These results represent a decline of 18.7% in number and 11.9% in value compared to 2022. This deceleration coincides with what would be expected, given the continuous increase in prices and interest rates, as well as the difficulty in purchasing habitation in Portugal. In fact, according to the Bank of Portugal Economic Bulletin, released in October 2023, it is more challenging to acquire a house nowadays than in the last financial crisis, requiring 11% more effort. Nevertheless, it is crucial to understand the reasons that may be dictating this evolution.

Housing prices reflect the demand and supply curve. Demand depends on household income levels, effective interest rates on real estate credit, the availability of credit from financial institutions, consumer confidence in the future, unemployment rates, values of substitute goods (especially rental costs), among others (Andrews, 2010). In the case of Portugal, these determinants are also combined with an increase in tourist demand in the form of Local Accommodation and the Golden Visa program, which drew external attention to the country. In turn, the supply of the real estate market is significantly inelastic in the short term, making it impossible to adjust in equilibrium (Hilbers et al., 2001). Therefore, prices are mainly defined by demand (Neves et al., 2018).

Regarding the private debt, it presented a downward tendency until the years affected by the crisis, and in 2013 it reversed, with the number of new loans steadily growing since then, as can be seen in *Figure 4.2 - New credits granted per year (total credit and housing credit)*, *expressed in million euros* . Despite a noticeable increase in new credits granted per year, the overall number of loans has remained relatively stable (*Figure 4.3 - Total number of credits granted (total credit and housing credit)*, *expressed in million euros*). In 2023, this phenomenon can be explained by the fact that there was an increase in repayment anticipation to avoid the impact of rising interest rates.

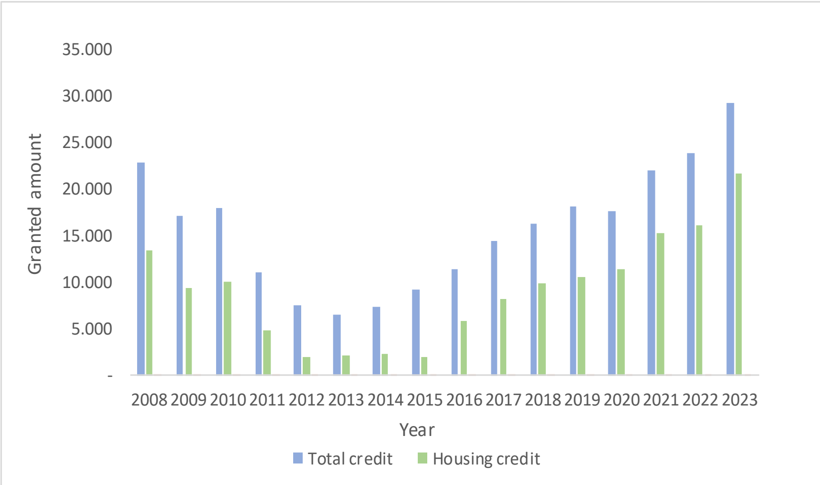

Figure 4.2 - New credits granted per year (total credit and housing credit), expressed in million euros
Source: BPstat

Figure 4.3 - Total number of credits granted (total credit and housing credit), expressed in million euros
Source: BPstat and PORDATA

Assessing the disposable income rate of individuals, it is possible to infer that in 2023 it stood at 5.8%, corresponding to the second lowest in the last 15 years, as can be observable in *Figure 4.4 - Percentage of disposable* income*.* The smallest value in these years was recorded in 2013, one of the most affected by the financial crisis in Portugal. According to Gonçalo Nascimento Rodrigues, coordinator of the postgraduate course in Real Estate

Investment at ISCTE Executive Education, house sale prices have risen notably, far beyond the income of those who purchase them (Idealista, 2023). The European Commission (2023) characterizes the Portuguese residential market as overvalued. Between 2019 and 2022, there was a discrepancy between the rise in property prices and families' disposable income, which amounted to 38% and 9%, respectively, on average for district capitals (Century 21, 2023). Thus, one of the causes of declining housing accessibility has to do with the inadequacy of the existing supply of properties to the population's disposable income.

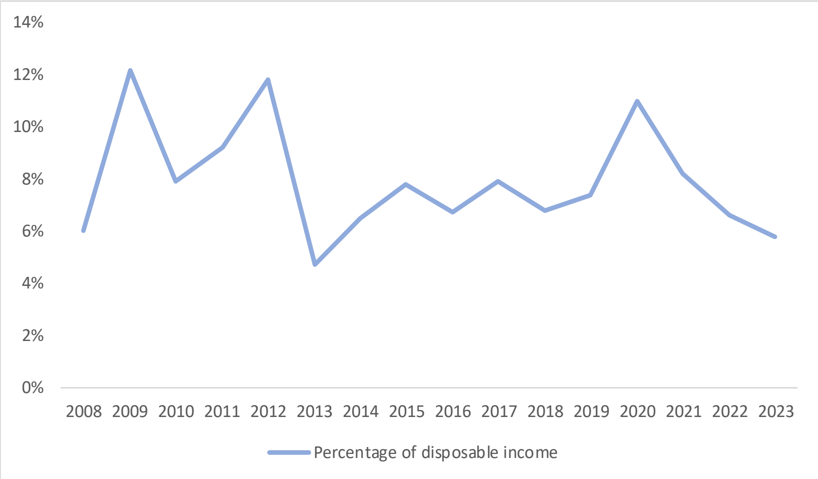

Figure 4.4 - Percentage of disposable income
Source: BPstat

Institutional particularities are elements also contributing to clarify shocks in prices and justify disparities observed across nations (Adams et al., 2010). The tax system, mortgage lending standards, and regulatory policies have the potential to affect the entire economy of a country, leading to the same disturbance having different results (Martins, 2011). According to the study of Noord (2003) focused on the relationship between tax incentives and house worth for a group of Eurozone countries, this measure has a growing impact on property acquisition, causing greater variability in prices. The value of bank financing, namely the sensitivity of interest rates, is one of the main elements also impacting their value. When rates are high, they act as a demobilizer for the purchase, as they imply a higher debt burden. Given the fact that the supply of properties, as previously mentioned, is heavily conditioned by demand, the theoretical outcome would be a decreasing trend in their price. Consequently, the drop in the value of the asset causes the bank guarantee to depreciate, causing the banking institutions to perceive an increase in the risk of default (Anundsen et al., 2016).

As the option of renting is the primary alternative to buying a house, it is important to understand the behavior of rents in Portugal. In fact, the growing trend in property purchase and sale prices was also felt in the rental market as well, albeit at different speeds. According to INE data, the median rent for new rental contracts in Portugal in 2023 was 7.21 €/m^2. The sub-regions of Grande Lisboa, Península de Setúbal, Algarve, Região Autónoma da Madeira, and Área Metropolitana do Porto recorded higher values than the national average. Particularly in the fourth quarter of 2023, the median rent of the 23,637 new rental contracts reached 7.71 €/m2, the largest change since the first quarter of 2020. This value represents a homologous growth of 4.5% in the number of new contracts and 11.6% in the value per square meter. During this time, the median income climbed in all NUTS II[1] sub-regions, with the exception of the Região Autónoma dos Açores, which declined by 3.2%. The flexibility and lower savings required associated with renting a home can be pointed out as explanations for the rise observed. However, the supply of houses for rent is even scarcer than the stock available for sale. Furthermore, the homeownership culture is very deep-rooted in the country, which means the preference for buying persists.

High tourist interest in Portugal has also influenced the dynamics of habitation prices. This attractiveness can be materialized in several ways, including the purchase of residences in restoration, whether for hotel or local accommodation purposes. Local accommodations are mostly available through digital platforms ending up bringing together the demand and supply sides, such as Airbnb. The evolution of the number of new registrations in the National Local Accommodation Registry began to increase in 2014, following the implementation of a change in regulation that reduced entrance barriers, notably for small investors on the supply side (Longo, 2017). This growth leads to a greater occupancy rate for temporary rentals, which, in a context of shortage of supply, harms the long-term real estate market. For this reason, within the scope of the "Mais Habitação Program", the issuance of new registrations of local accommodation establishments was suspended in apartments and autonomous fractions of buildings located in high-density regions. Another policy enacted in this regard was the exemption from Personal Income Tax or Corporate Income Tax on rents until the end of 2029 for those who removed their houses from Local Accommodation and transferred them to a rental regime. According to research conducted by Nova School of Business and Economics on behalf of the Local Accommodation Association in Portugal, only 13% of Local Accommodation owners consider the possibility of putting the property up for rent (Idealista, 2023). However, with the change of Governments to the one led by Luís Montenegro, some previously imposed rules were revoked, namely the suspension of Local Accommodation licenses and the elimination of the Special Contribution on Local Accommodation.

Additionally, Portugal has become a highly sought-after destination for foreigners in recent years, especially for North Americans, who concentrated 67% of their real estate investment here (Idealista, 2023). Returning to 2011, a period marked by the lack of control over sovereign

[1] According to the Pessoas 2030 Program, co-financed by the European Union, NUTS II is used to apply regional policies, corresponding to administrative regions or groupings of regions.

debt, external financial assistance was requested from a delegation composed of representatives from the European Central Bank, the European Commission, and the International Monetary Fund. It was crucial to reduce costs and create new sources of income, and one of which was the introduction, in October 2012, of the "Residence Authorization Program for Investment" or "Golden Visa" to encourage foreign investment. In this sense, this investment activity could take place in eight different ways, including the creation of businesses and employment, the acquisition of properties, among others. Thus, residence visas were granted to anyone purchasing real estate from 500 thousand euros and, when located in low-density areas, the minimum investment required was 400 thousand euros. If the construction was completed more than 30 years ago or located in an urban rehabilitation area, the amount made accessible must be greater than 350 thousand euros or, if it was in an urban restoration area, this value decreases to 280 thousand euros. As can be deduced from *Figure 4.5 - Number of Golden Visas granted (total and by type of investment),* around 90% (11,383 visas) of Golden Visas granted until September 2023[2] was to real estate investors, representing a total investment worth more than 6,400 million euros. As a result, this measure played an active role in the housing market, with emphasis on the medium-high range, inherent to the conditions for the visa rules. The highlighted aspects boosting the growth of foreign interest in Portugal have to do with security, increased adoption of remote work and quality of health and education systems, the population having high levels of proficiency in English, as well as the appreciation of the dollar in the case of American investors. For João Pereira dos Santos, Professor of Economics at ISEG (Higher institute of Economics and Management) and Scientific Coordinator at Fundação Francisco Manuel dos Santos, this measure has an indirect effect, resulting in the current surge.

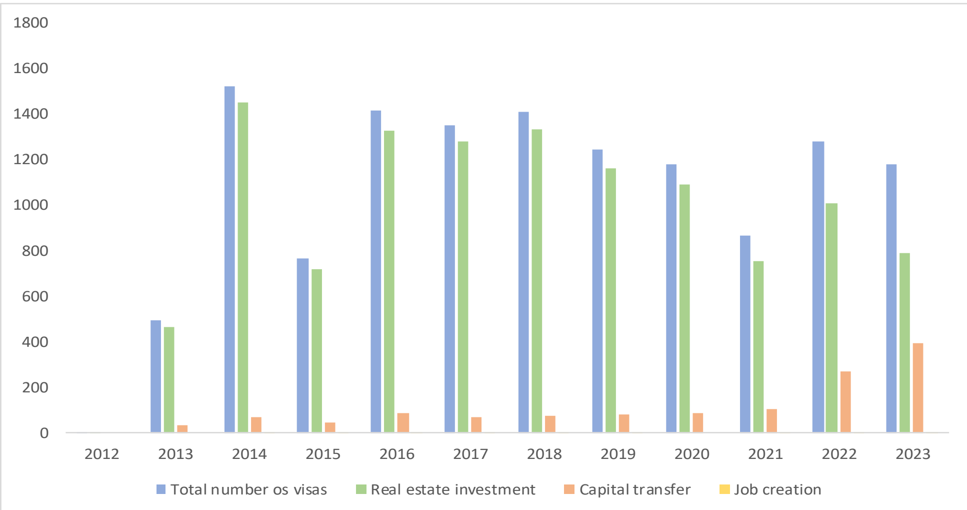

Figure 4.5 - Number of Golden Visas granted (total and by type of investment)
Source: Foreigners and Borders Services

[2] We only have data up to this month, since in October the option to purchase real estate under the Golden Visa was formally discontinued.

Concerning forecasts for the real estate sector during the year 2024, experts' opinions are divided between stabilization and price increases. According to Rodrigues (2023), all the indicators are present to generate a sharp correction in prices, including the market being overvalued, high interest rates, and income does not sustain the rising house values. Although we confront this risk, the European Commission (2023) does not expect a change, as supply will continue to be constrained and a gradual easing of interest rates is expected. Additionally, the economy, although strained, shows signs of growth, the employment rate is favorable and social aid continues to exist, reducing the likelihood of a major adjustment (Idealista, 2023).

One of the arguments motivating the rise in prices is related to the perceived mismatch between supply and demand, which is indicated to continue. From a supply standpoint, the considerable shortage of properties will remain the biggest challenge. According to the Real Estate Report 2024, conducted by Berkshire Hathaway Home Services, around 300 thousand properties are missing in the capital alone and the pace of construction is not keeping up with demand. The president of Portuguese Association of Real Estate Developers and Investors, Hugo Santos Ferreira, stated that the decade spanning from 2011 to 2021 has seen the least amount of construction in Portugal's history. Forecasts indicate there will continue to be constraints on construction. Concerning occupied houses, there might be an increase in supply resulting from the possibility of some owners need to sell their homes due to difficulty in maintaining the financial commitment of housing loans (Rodrigues, 2023). On the demand side, with signs of falling interest rates, Moura-George (2023), general director of Athena Advisers Portugal, believes the market for clients more dependent on bank loans may be reactivated (Idealista 2023). Despite the projected decline, interest rates will remain at high levels, which will keep access to financing difficult. However, a place to live is a basic necessity, so demand is expected to endure intensely. Another subject under consideration for forecasting was the behavior of foreign investment. In fact, foreigners looking for a place to live in Portugal typically have greater purchasing power than Portuguese people, making them less sensitive to fluctuations in interest rates. Furthermore, the climate of political instability felt in the United States of America may serve as a motivator to urge the purchase of a residence in another country. However, the fact that housing measures under the Golden Visa program have been withdrawn may influence the decision to buy a home in Portugal, as there are countries in which this tax benefit regime still exists, namely Spain (Moura-George, 2023; Idealista, 2023).

The significant increase in house sales prices and rentals, as well as the rise in interest rates, has altered the entire home buying and selling market, affecting not only households, but also builders, real estate agents, and banks. Understanding the various dimensions of the property sector is, therefore, critical in order to anticipate their potential effects on the national economy and facilitate the definition of policies suited for today's society.

Chapter 5 – Act of granting housing credit

The granting of credit by banks serves as one of the main drivers of the functioning of the financial system, allowing citizens and companies to finance the implementation of their projects. According to Levine (2004), there is compelling empirical evidence linking the relevance of the credit market to economic growth. From the perspective of the vast majority of people, the most important investment plan of their lives involves purchasing housing, considering the required amount, the duration of the commitment, and the consequences of foreclosure of the mortgage (Decree-Law No. 74-A/2017, 2017). Interest and commissions associated with loans constitute the primary source of income for banking institutions. This process involves several steps designed to ensure that the loan is suitable with the consumer’s financial capacity and minimize risks for the entity. Therefore, in order to sustain economic growth, both parties involved must be properly informed and in agreement on the terms of the credit granted. Hence, this chapter will focus on the act of issuing housing credit, with a particular emphasis on the credit risk incurred, client assessment by the loan creditor, and regulation inherent to this crucial procedure.

5.1 Credit risk assessment

One of the central risks associated with banking activity is credit risk, which is defined as 'the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms' (Basel Committee on Banking Supervision, 2000). Thus, credit risk is associated with the probability of debtors defaulting, both with regard to installment payments and contract clauses (Alcarva, 2011). Like any business, the primary objective of financial entities is to maximize profits and, as this risk may jeopardize their success, careful examination of the elements that influence the borrower’s situations is necessary. This procedure begins when credit is issued and continues with monitoring over time (Saunders and Cornett, 2006). The accentuated growth that has characterized the banking sector along with the diversification and increasing complexity of the products and services available, highlight the relevance of credit risk management. This activity is made difficult when there is information asymmetry, which occurs when the customers hide essential details that allows the creditor to infer their real intentions and ability to pay. According to Carvalho (2009), debtors, especially when they are not good payers, have no purpose of revealing conditions that degrading the Bank’s perception of their likelihood of default. In this sense, before granting credit, the lender must analyze the client’s ability to meet the responsibilities to which it is intended. Risk assessment is crucial in mitigating the chance of default.

As specified by Carvalho (2009), risk assessment must be adjusted to the different phases of the loan granting (acceptance assessment and behavioral assessment) and the method applied (case-by-case method and automatic method). First and foremost, the acceptance assessment is related to the analysis of the borrowers' ability to fulfill their obligations. Its objective is to accept or refuse credit and to specify the criteria under which it can be carried out, in case of confirmation. Thus, it works as a first preventive measure against credit risk. In contrast, the behavioral evaluation applies after credit has been assigned and focuses on the degree of compliance, as well as the relationship between the customer and the creditor. Unlike acceptance appraisal, which is a static process occurring only once, this is a continuous approach that ends only when the credit is entirely settled, requiring adjustment and review of conditions regularly.

What supports the decision-making of whether or not to accept a credit are the assessment models, which are primarily divided into case-by-case and automatic assessment. Starting with the first concept, which is carried out manually by a credit analyst through their interpretation, expertise, and knowledge regarding factors characterizing and distinguishing consumers. In this case, the main limitation is the fact that it is highly subjective. According to Weston and Brigham (1975), five primary elements are evaluated, known as the five C's: Character, Capacity, Capital, Collateral and Conditions. Regarding the Character, the aim is to ascertain the degree of intention to fulfill the established contract, which can be measured through interviews. With reference to Capacity, the financial conditioning the customer has to repay the loan must be analyzed, using the calculation of the respective effort rate. The Capital component has to do with the availability of net assets to cover the debt. The Collateral evaluation aims, in the event of default, to serve as a guarantee to ensure the receipt of the amount granted. Personal, investment, and business assets can all be used as collateral. Finally, Control assesses the entire environment not controlled by the debtors and may interfere with their credit risk, such as macroeconomic scenarios (Carvalho, 2009). Meanwhile, automatic assessment emerged as a result of technology advancements, using systems programmed in advance to do analyses and make decisions in accordance with the institution's credit policy. This allowed to improve the accuracy and efficiency of the risk analysis activity. Neves (2007) classifies automatic evaluation systems into rating and scoring systems. The attribution of a rating is applied when measuring the risk of a country or organization and is determined by specialized agencies for this purpose. The most reputable of which are Moody's, Standard & Poor's (S&P) and Fitch Ratings. The rating classification model, despite certain commonalities, varies from company to company, as seen in the following table:

Table 5.1 - Rating classification model of Moody's, S&P and Fitch Ratings

Moody's[3]	**Aaa -** Highest quality, minimal risk **Aa -** High quality, very low credit risk **A -** Upper-medium-grade, low credit risk **Baa -** Medium-grade, moderate credit risk **Ba -** Speculative elements, substancial credit risk **B -** Speculative, high credit risk **Caa -** Poor standing, very high credit risk **Ca -** Highly speculative and very near to default with some prospect of recovery in principal and interest **C -** Lowest-rated class of bonds and are typicaly in default, with little prospect for recovery of principal and interest
Fitch Ratings[4]	**AAA -** Highest credit quality **AA -** Very high credit quality **A -** High credit quality **BBB -** Good credit quality **BB -** Speculative **B -** Highly speculative **CCC -** Substancial credit risk **CC -** Very high levels of credit risk **C -** Near default **RD -** Restricted Default **D -** Default
Standard & Poor's[5]	**AAA -** Extremly strong capacity to meet financial commitments **AA -** Very strong capacity to meet financial commitments **A -** Strong capacity to meet financial commitments **BBB -** Adequate capacity to meet financial commitments **BBB- -** Lowest investment-grade by market participants **BB+ -** Highest speculative-grade by market participants **BB -** Less vulnerable in the near-term but faces major ongoing uncertainties to adverse business, financial and economic conditions **B -** More vulnerable to adverse business, financial and economic conditions but currently has the capacity to meet financial commitments **CCC -** Currently vulnerable and dependent on favorable business, financial and economic conditions to meet financial commitments **CC -** Highly vulnerable; default has not yet occurred, but is expected to be a virtual certainty **C -** Currently highly vulnerable to non-payment, and ultimate recovery is expected to be lower than that of higher rated obligations **D -** Default

[3] AP075378_1_1408_KI.pdf (moodys.com)
[4] Rating Definitions (fitchratings.com)
[5] Intro to Credit Ratings | S&P Global Ratings (spglobal.com)

Several factors are considered in this process, including financial information, the ability to generate revenue, reliability, and credibility of the projects. Regarding the scoring model, it expresses risk simply and quickly through an algebraic conversion process of the appropriate score of explanatory components, subsequently resulting in a final score. A scoring table typically contains 6 to 12 factors, including age, monthly house cost, bank accounts and credit cards, debt-to-income ratio, among others. Each of these determinants has two or more attributes and the responses correspond to a numerical score. This number reflects the degree to which the creditor's previous experience statistically links creditworthiness with that attribute when in conjunction with the other characteristics. Thus, a high score does not imply past applicants with that attribute always repay loans on schedule, but rather applicants who combine this attribute with other high score traits have better credit risk (Hsia, 1978). The overall score either reaches or fails to satisfy a predefined cutoff. The cutoff score decides whether the creditor rejects the applicant, forwards the application to a credit officer for additional assessment, requests a more detailed credit report, or accepts the applicant right away. The cutoff score is based on the creditor's business judgment of the repayment probability table and acceptable default rate. Despite the initial development and implementation expenditures, credit scoring has the advantage of incurring very low operating costs. Regardless of the resource used to quantify the default risk, the risk to which the creditor is exposed, the profit margin it should generate, and the costs implicit in the loan must all be considered (Carvalho, 2009). In fact, both types of assessment (casuistic and automatic) often complement each other, as the human mind makes it possible to cover essential aspects while systems are more efficient in processing information. The evaluation helps creditors to acquire an assessment of the debtor's quality and, consequently, adapt the credit offering accordingly.

5.2 Interest rate on housing credit

Interest rates are, without question, of great importance in a house loan contract and one of the main loan decisions. In the context of rising interest rates by the Central Bank, this topic gains even more prominence, as it directly influences the cost of the loan and the amount of the monthly installment. Housing credit can be contracted with different modalities: variable interest rate, which is updated throughout the duration of the loan; fixed interest rate that remains constant during the repayment period; and mixed interest rate, combining both regimes (fixed and variable). With regard to the variable interest rate, this is the result of the sum of an indexed rate, which is automatically reviewed during the contract, and the spread, assigned by the bank institution based on its assessment of the customer's default risk. In the case of the first, it has an associated market reference rate, being, for most contracts, the Euribor, whose update frequency can be agreed between the parties. This can take three review periods, namely 3, 6, and 12 months. The interest rate changes when it is amended, either positively or negatively, reflecting the Euribor trend. Its annual historical value is represented in *Figure 5.1 - Euribor annual history.* In turn, in loans taken out at a fixed rate, this remains unchanged for the period agreed with the Bank, regardless of fluctuations in market interest rates. Under normal conditions, the installment of this kind of modality is higher than the one indexed to Euribor. The value of the rate is defined with reference to the fixed rate on the interbank market for the same term, the swap rate. In the case of the mixed rate, a fixed rate is applied for a certain period and, subsequently, a variable rate starts to apply.

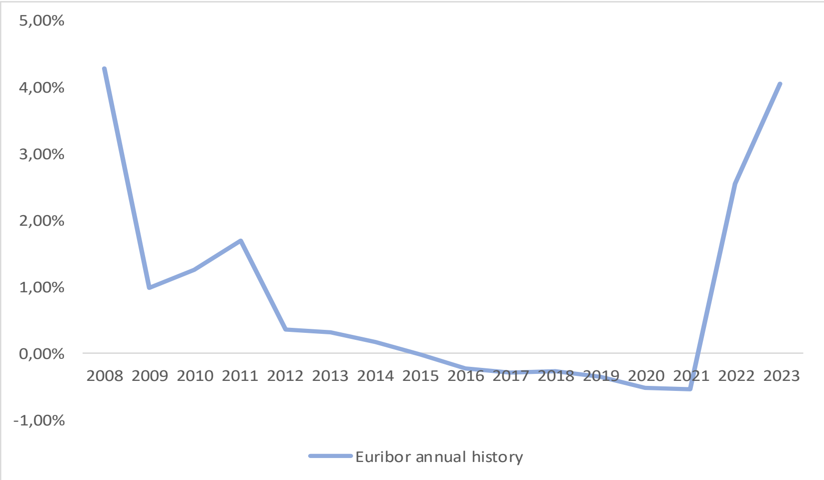

Figure 5.1 - Euribor annual history
Source: European Central Bank

Since 2021, we have observed interest rates increasing, with a notable spike in 2023, as *Figure 5.2 - Housing credit rate, in percentage* illustrates. However, it was not always like this. During the financial crisis, defined by market contraction and uncertainty, families changed their consumption habits, moving down the demand curve. The periods following this kind of events are marked by exceptionally low interest rates. The European Central Bank has consecutively broken interest rates, to 0.05% in 2014 and to 0.00% in 2016. The objective was to encourage the use of credit and, in the case of housing, increase demand and acquisition.

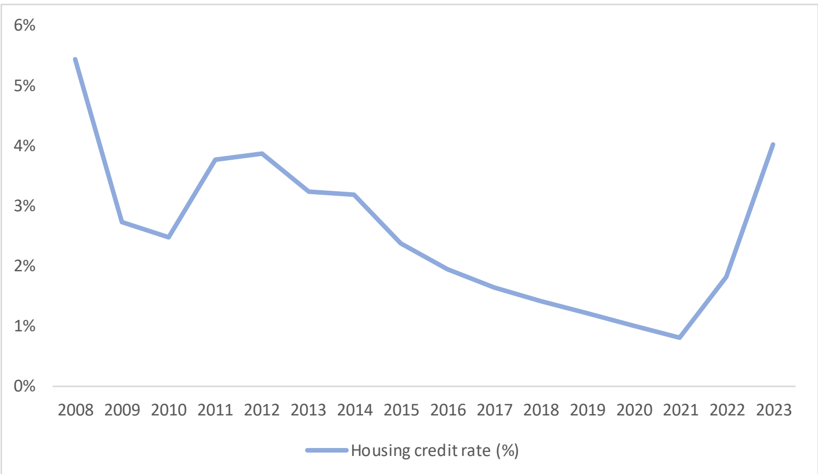

Figure 5.2 - Housing credit rate, in percentage
Source: BPstat

It should be noted that until 2023, the year in which a paradigm shift occurred, the Portuguese real estate market was extremely sensitive to changes in interest rates, since the vast majority of loans were granted with variable interest rates. In comparative terms and according to the data available in BPstat, in December 2022 almost 77% of housing loans were contracted with a variable interest rate, which contrasts with the 24% recorded in December 2023. During these months, the mixed rate was the most chosen option when taking out new loans, in an effort to deal with the rise in interest rates in the initial years of debt repayment. With the increased adherence that was felt, this type of rate was at 16% in December 2022 and ended the year 2023 at about 71%.

5.3 Non-performing loans

Although customers are thoroughly assessed, there is always a proportion of Non-Performing Loans (NPL) associated with inefficient credit allocation. According to the concept of the European Central Bank (2016), a loan becomes non-performing when there are indications the borrower is unlikely to repay the loan or if more than 90 days have passed without the agreed installments have been paid. A high percentage of NPLs in a banking system is a sign of a heavily indebted and, therefore, more vulnerable economy. This situation weakens the profitability of banks, as it minimizes the amount gained from granting loans. This issue has become particularly relevant after the international financial crisis, as it progressively increased during this period (*Figure 5.3 - Non-performing loans ratio*), reflecting a highly leveraged non-financial sector. The ratio reached its peak in 2015 and 2016 and has been steadily decreasing since then.

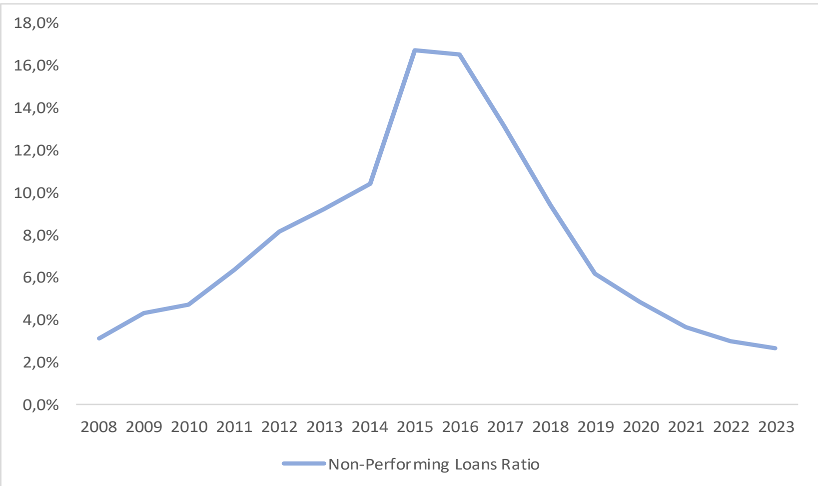

Figure 5.3 - Non-performing loans ratio
Source: Statista and BPstat

Especially in periods of recession, the most indebted economic agents have greater difficulty in meeting their debt service and may incur default. From the standpoint of the consumers, failure to timely fulfill installments of credit agreements has serious consequences.

These include the imposition of late payment interest, commissions, and other charges that compound the outstanding amount; notification do Bank of Portugal's Credit Responsibility Center, having implications for the assessment of credit risk; and potential legal action to recover the unpaid balance, which may lead to the seizure of the proceeds and the sale of the client's assets. With the increase in interest rates on credits indexed to Euribor and with purchasing power conditioned due to rising inflation, it would be expected more families would no longer be able to pay their loans and the number of defaults would grow. Nevertheless, this was not the phenomenon observed. The progress noticed is due to stability in the job market, public support for housing credit, and the greater strength of the banks, which have implemented more restrictive practices in granting credit and have simultaneously strengthened provisioning levels. Furthermore, according to Filipe Garcia, president of Financial Markets Information (IMF), the housing market continues to increase in value, meaning that families can sell their homes and obtain some capital gains, resulting in non-compliance (Idealista, 2023).

In addition to analyzing customers' creditworthiness, it is equally important to monitor situations, in order to detect at an early stage that the borrower may be on the verge of defaulting. According to the guidelines on non-performing credits addressed to credit institutions, made available by the European Central Bank in 2017, banking entities must monitor the relative and absolute levels of NPL, assets executed and received as payment in kind, guarantees, and the values allocated to impairment and provisions. When objective evidence of a potential loss exists, impairment must be recognized and recorded in accordance with International Financial Reporting Standard 9 (IFRS 9), which has been in effect since January 1, 2018. As a result, the impairment serves as a tool to adjust the asset's value following the original assessment to most accurately depict the likely benefit to be obtained in the future from it. For the purposes of calculating impairment, expected losses are determined depending on the stage in which they are classified, as shown in *Table 5.2 – Stages considered in the impairment calculation*.

Table 5.2 - Stages considered in the impairment calculation

Stage 1	Contracts whose credit risk has not increased significantly since their initial recognition (except POCI - Purchased or Originated Credit Impaired[6] cases).
Stage 2	Contracts whose credit risk has increased significantly since initial recognition, but for which there is no objective evidence of impairment.
Stage 3	Contracts with objective signs of impairment.

[6] POCI: financial assets with objective evidence of impairment at the time of initial recognition.

Customers in stages 1 and 2 do not require such an exhaustive impairment analysis, so they are categorized based on their risk characteristics. Subsequently, impairment is calculated using the collective analysis of these homogeneous populations created. The main factors to take into account in these cases are the Probability of Default (12 months for stage 1 credits and lifetime for stage 2 credits), Loss Given Default, and Credit Conversion Factor, which concerns the applicable credit conversion factor to the unused off-balance sheet amount. In turn, clients in stage 3 are subjected to individual analysis, in which an expectation of recovery of their entire exposure and the deadline inherent to it is assigned. As a result, the impairment value is achieved through the prospects of receiving assets and the expected period to obtain them. This process considers qualitative and quantitative data describe the client and their credit experience. For each debtor, impairment is obtained through the difference between the respective exposure and the sum of expected cash flows relating to the various operations, updated according to the effective interest rate of each operation.

In response, banking institutions, to protect themselves against losses that have not actually occurred yet, but which are expected to materialize in the future, record provisions, which consists of setting aside the amount they estimate to lose. Consequently, this money is no longer available for use and cannot be applied toward the granting of new loans. Additionally, the European Central Bank's guidelines also emphasize the need to assess the quality of the productive portfolio on a monthly basis. Thus, with all of these procedures, deferral measures can be put in place to prevent clients from getting into unproductive situations or, in the event they have already defaulted, to allow the return to sustainable debt. Therefore, banks must establish policies focusing on the viability and longevity of the resolution. The European Central Bank (2017) distinguishes between short-term and long-term options, with most solutions including a combination of both. The following table encompasses the most frequently adopted measures:

Table 5.3 - Examples of deferral measures implemented by banks to prevent default

Short term	**Long term**
- Exclusive interest payment - Reduced repayment installments - Grace period/payment moratorium - Capitalization of late payments/interest	- Reduction in interest rate - Extension of deadline/expiration - Additional warranty - Agreed sale/assisted sale - Rescheduled payments - Currency conversion - Other changes to the conditions/clauses of the contract - New credit facilities - Debt consolidation - Partial or total debt forgiveness

5.4 Regulation inherent to the granting of housing credit

Before delving into the regulations inherent to the process of granting housing credit, it is important to note this concept covers credit contracts intended for the acquisition or construction of permanent[7], secondary, or rental housing; acquisition or maintenance of property rights over existing or planned land or buildings; and payment of the down payment for the future acquisition of property for permanent, secondary or rental housing. In this regard, Decree-Law No. 74-A/2017, issued on June 23, aimed at establishing more responsible lending practices to consumers, as well as creating a unified regulatory framework applicable in the European Union. Therefore, it intends to place more emphasis on creditworthiness evaluation and ensures the process is transparent and informed. In this sense, before contracting this sort of credit, financial institutions must make the European Standardized Information Sheet (ESIS) available to bank customers. This document presents a standard structure and encompasses all the information of the financial proposal from the bank in question, such as the loan amount and total amount to be repaid, the term, the type of rate, and the guarantees required. The client may be suggested to reduce contract charges, namely a spread bonus, if acquiring a cross-selling strategy. The most common proposals include purchasing insurance, opening a Retirement Savings Plan (RSP) or credit card, domiciling the salary, and setting up direct debits. If this optional acquisition occurs, the products and services associated with the credit must be detailed in ESIS, the financial effects produced by them onthe loan, and the impact of subsequent changes relating to the acquisition objects, particularly in terms of the value installment, spread, and interest rates. Financial entities remain bound to the contractual proposal delivered for a minimum period of thirty days and the client and guarantor, if applicable, have a minimum reflection period of seven days. In fact, ESIS has the role of facilitating the comparison of the conditions of the various credit offers and, consequently, a more careful and informed decision-making. When approving the loan, a new ESIS with the agreed terms must be submitted, along with a draft of the credit agreement. Furthermore, banking institutions have the duty to notify the counterparty about changes in contractual conditions having an impact on the value of the installment or the total amount payable, as well as cases of non-compliance and regularization thereof. Certain aspects must be considered while analyzing solvency, such as age, professional status, regular income and expenses, and information contained in the Credit Responsibility Center of the Bank of Portugal. The client must also provide documents demonstrating the veracity of these data. Future circumstances that may interfere with the ability to service the debt must also be

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[7] According to Decree-Law No. 49/98 of November 11, own and permanent housing is defined as one where the borrower or the borrower and his or her family would retain and stable their center of family life.

considered, namely a possible reduction in income earned, an increase in expenses resulting from the need to take out more loans, and a rise in the value of installments as interest rates climb. The credit proposal should only be approved if the result of the evaluation indicates the conditions are met for proper debt service. In the event of rejection, it is only mandatory to communicate the reason to the customer if it is related to the information consulted in the credit responsibility databases. In addition to harmonizing documentation, this regulation also requires a high level of knowledge and skills, as well as adequate remuneration for workers and service providers, in order to ensure that they perform honestly and manage conflicts of interest appropriately.

To complement the previously mentioned Decree-Law, the Bank of Portugal, as the national macroprudential authority, released a recommendation in April 2020 titled “Recommendation of the Bank of Portugal within the scope of new credit contracts concluded with consumers”. This measure establishes more prudent credit granting criteria to, on the one hand, strengthen the financial system’s capacity to absorb adverse shocks and, on the other, enable families to obtain stable financing and, consequently, reduce the risk of default. In this context, new credit contracts must adhere to specific constraints regarding the value of the property, the effort rate, the loan term and the repayment method. These restrictions must be interpreted as maximum values, without neglecting the obligation to analyze the creditworthiness of each borrower. Focusing primarily on the Loan-To-Value Ratio, the amount of credit contracted is not allowed to transcend a percentage of the property’s value, corresponding to the minimum between the acquisition value and the property's appraisal value. Therefore, according to the recommendation, the amount of credit should not exceed: 90% of the value of the property when it is a loan for own and permanent housing; 80% of the value of the property when the credit has other purposes not related to own and permanent housing; and 100% of the value of the property when the credit is for the acquisition of properties held by institutions and real estate financial leasing contracts. As a result, the total amount of the consumer’s monthly installments cannot surpass 50% of their income, net of taxes and contributions. This parameter is calculated using the Debt Service-To-Income ratio. The loan term of the loan for housing contracts varies depending on the age of the borrower: if it is equal to or less than 30 years, the repayment period is not allowed to last more than 40 years; between 30 and 35 years of age, the maximum period is 37 years; and age over 35 years implies that the term is no longer than 35 years. Finally, the measure on the loan repayment modality requires regular principal and interest payments in installments and does not allow for grace periods.

Chapter 6 – Factors related to a greater probability of default

Identifying the characteristics of borrowers that are associated with a greater probability of default plays a very important role, especially in the Portuguese banking system, which is heavily exposed to the private sector. In this way, it becomes possible to monitor the outlook for the evolution of credit risk and estimate its consequences for the stability of the financial system (Costa, 2012). Regarding the factors influencing credit compliance, can be distinguished between the debtor attributes and contract features. Furthermore, credit risk is divided into systematic and specific risk (Li and Zina, 2014; Aver, 2008). The first corresponds to the component that cannot be avoided through portfolio diversification and whose exposure covers the entire system, such as interest rates, regulation, unemployment and GDP growth. In contrast, specific risk is determined by individual aspects of each person, namely age, income level, educational qualifications, and each contract, such as the repayment period, type of loan, and collateral. This chapter will focus on factors of personality and the loan terms, as well as the relationship between these and the perception of default risk. Additionally, a comparison was made of the conclusions about the most relevant attributes and the profile of people who took out credit during the year 2023.

According to Ando's and Modigliani's life cycle/permanent income theory model (1963), consumers consider their life expectancy when making decisions. Therefore, it is expected customers with similar age and level of permanent income will have the same probability of payment failure. In general, lifetime income begins low with entry into the job market, increases with years of experience, and then drops at the time of retirement (Rebelo and Caldas, 2010). Young people tend to be more prone to getting into debt, since their level of consumption is not based on the income available at the time of purchase, but rather what is expected throughout life. As younger customers have a lower current income than they expect to get in the medium to long term, they become more susceptible to not being exemplary payers. On the contrary, older people tend to engage in saving practices and be more conscious when purchasing. The study conducted by Farinha and Lacerda (2010) reinforces this though, since the results indicate that debtors in the younger age bracket are more likely to not comply. In addition, older consumers are perceived as being less probable to miss payment deadlines, as they are more responsible, and, in the event of financial difficulties, lack a wider group of people willing to help (Bilau and St-Pierre, 2018).

Indeed, borrowers with higher salaries and stable jobs have better repayment capacity, as do those with high levels of education (Li and Yang, 2018; Lin et al., 2011). Several authors (for example, Farinha and Lacerda, 2010; Capozza and Thomson 2005) associate great volatility with self-employed individuals, resulting in a higher credit risk. The effectiveness of the position also has an influence, as salary reductions or job loss are more common in temporary employment contracts, favoring the occurrence of default (Pennington-Cross and Ho, 2006). Conversely, financial professionals, including accountants, investors, managers and bankers are more likely to be compliant, as they prioritize their reputation and are expected to have more knowledge in this field.

Another feature appearing to be crucial in the assessment of credit risk is gender. Mota et al. (2018) mention women present a lower probability of nonpayment, hence banks prefer to have them in greater abundance in their portfolios. According to Bhatt and Tang (2002), the female gender has a propensity to be more financially disciplined, ensuring the money intended for the purpose of credit is available. Another determinant favoring their compliance is the fact that women often exhibit lower risk-taking behavior (Yordanova and Alexandrova-Boshnakova, 2011). The risk-taking posture is positively related with increased credit usage, which leads to higher monthly payments and makes it more difficult to meet obligations.

Regarding marital status, there is a duality among certain authors. Some (Mota et al., 2018; Dunn and Kim, 1999) argue that single people are not as responsible or mature, and, therefore, have more tendency to default. Furthermore, it is just a salary to support commitments. The opposite perspective believes couples, despite being two sources of income, have a higher rate of debt due to high family expenses and, if any, the number of dependents (Dinh and Kleimeier, 2007; Marshall et al., 2010).

In addition to the aforementioned attributes, certain events can occur in the personal sphere having a significant influence on the incidence of noncompliance, namely a situation of unemployment, the onset of an illness and the occurrence of a divorce. Firstly, unemployment is pointed out as one of the main determinants responsible for default, causing a worsening of the economic situation and potentially leading to an inability to service the debt. The study conducted by Sandar et al. (2010) reveals the main factor that increases the likelihood of a debtor defaulting is related to health problems, which implies high expenses for medication and medical care. In turn, the separation of a couple is complex, both on an emotional and practical level. In the event of a common housing credit, an issue is whether one of the parties intends to keep the house and thus be responsible for the payment of the mortgage. If this is the case, it is necessary to contact the bank to which the credit is linked in order to understand whether it accepts the member who does not keep the house ceases to be the grantor of the contract and, if so, what are the conditions required for this effect. Decree-Law No. 74-A/2017 does not allow banking institutions to change the mortgage loan spread in the event of divorce if the effort rate of the household who keeps the asset is less than 55% or, if it has two or more dependents, 60%. If they reach an agreement with the bank, the person leaving the contract is entitled to receive their share of the house. If neither party wants to keep the property, the process involves selling it and splitting the amount accordingly. This condition increases the difficulty required for individuals to pay their own monthly expenses, as well as any remaining expenses were previously shared by both members of the family. With this rise, the likelihood of nonpayment will also grow.

In terms of loan attributes, those with longer original maturity are associated with a greater expectation of default (Farinha and Lacerda, 2010). This is due to the fact that extensive payment terms are typically related to debtors with lower repayment capacity, so they prefer to make more payments of smaller amounts. With regard to collaterals and according to Bandyopadhyay and Saha (2009), the risk of nonpayment is reduced if the debtor submits an additional collateral to the main one. The provision of other guarantees correlates with a higher level of wealth. The same authors also state that the presence of guarantors is linked to better debt fulfillment, since it involves a higher salary amount. Farinha and Lacerda (2010) obtained contrary results in their study on personal guarantees, arguing that clients who need to present them in order to access housing credit had a higher level of risk. Then, the requirement for this security, particularly among younger people, is an attempt to avoid the materialization of expected potential losses.

In accordance with data published by the Bank of Portugal on the sociodemographic characterization of people who took out credit in the country in 2023, 2 million new contracts were signed with 1.6 million people, for a total of 25 billion euros. Regarding own and permanent housing, 61% of this type of loan was granted to people aged up to 40. The vast majority were employed and had a higher degree of education. In terms of gender, while men were more prevalent in the general context of loans beginning in 2023, men and women were equally represented in house loans. The studies considered in this analysis point to a higher level of default among young people, with a higher incidence among males, who work in unskilled professions or are self-employed. Looking at the situation in Portugal, the factors that characterize the general sample do not seem to be directly tied to a situation of default.

Chapter 7 – Risk management measures and support for housing credit

Default on housing credit has been a hot topic in Portugal, especially after the increase in reference interest rates by the European Central Bank. Current times are often compared with those of the 2008 economic crisis; however, the country has progressed a lot since then, presenting a more robust economy, stricter lending criteria and lower unemployment levels. As can be seen in *Figure 2.1 - Ratio of overdue housing credit in Portugal*, this ratio of overdue loans, which stood at 1.5% in 2008 and reached its peak at 2.5% in 2014 and 2015, has never been as low as in 2023, the year in which it stands at 0.2%. The fact that the non-compliance has not materialized is mainly due to the measures implemented to support individuals in the housing sector, with the aim of preventing the accumulation of excessive risks in the banking system and ensuring financial stability.

Given the greater probability of default triggered by the reality of loan rates, the Decree-Law No. 80-A/2022 was enacted until December 31, 2023. It establishes new guidelines for reviewing the terms of credit contracts for own and permanent housing up to 300 thousand euros. In this context, whenever banks detect a significant worsening of the customer's effort rate, appropriate alternatives must be proposed to them, such as an extension of the repayment period. Therefore, customers may benefit from this support if their effort rate is in one of the following situations: (i) it is equal to or greater than 50%; (ii) it has reached 36% due to an increase of five percentage points compared to the previous period or due to the Euribor rising by more than three percentage points; (iii) and it is already 36% and has risen by five percentage points or the Euribor has risen by more than three points.

The initiative can also come from the borrower by communicating to the banking institution the degradation of their financial capacity. Contract renegotiation cannot entail commissions, and the interest rate cannot be increased. According to data published by the Bank of Portugal (2023), 154,071 renegotiations took place in 2023, representing a growth of 271.6% when compared to 2022. In most of the renegotiated contracts (89.9%), borrowers were not in a situation of default. However, due to rising interest rates, consumers have become more proactive in seeking to obtain more favorable credit conditions. Still within the scope of this proposal, the early reimbursement commission is not due for contracts covered under the terms of this Decree-Law. According to the Credit Markets Monitoring Report (2023), the number of early repayments has skyrocketed, with 247,601 having been made in 2023. This value represents a climb of 74.4% on the previous period and was mainly due to the impact of partial repayments. Furthermore, during 2023 it was possible to allocate the balance of the Retirement Savings Plan, up to a maximum of around 12 thousand euros, to pay the loans installments, even if 5 years had not passed since the subscription. Outside of this specific context, it was only possible to redeem the RSP without penalty after this period, except in situations of long-term unemployment, serious illness or permanent incapacity for work.

Decree-Law No. 91/2023, of October 11, establishes an exceptional and temporary measure to provide greater predictability and mitigate the effects of the growth in the monthly installment, namely through the possibility of fixing the payment value of credit contracts for own and permanent housing for a period of 24 months. The fixed amount is computed using 70% of the 6-month Euribor rate as a reference, plus the contractually foreseen spread. Once the fixation period ends, the rate returns to the initial terms. The amounts not charged during this time will be refunded in the last two years of the contract, if there are less than 6 years left to complete the loan payment; or from the fourth year after the end of the installment fixed period, if the remaining term of the credit is equal to or greater than 6 years. This measure covers contracts that have been signed until March 15, 2023, with a variable interest rate or, in the case of those with a mixed rate, are in the variable rate period, have a remaining term of more than 5 years and are not in arrears, insolvency, or being monitored by Default Risk Action Plan (PARI) and Extrajudicial Regularization of Default Situations (PERSI). In addition to implementing this procedure, the suspension of the early repayment fee has been extended for one year, being eligible until December 31, 2024.

In fact, the country's low wages have intensified the emigration of qualified young people, as well as delaying the ability to purchase a house. According to data released by Eurostat for 2022, the average age at which people leave their parents' place in Portugal is 30, higher than the average for Europe (26). To address these challenges and aware that young people are the demographic group most affected by the housing affordability crisis, the Portuguese Government has developed several initiatives through the "Tens futuro em Portugal" ("You have a future in Portugal") plan. The purpose is to provide conditions and opportunities for the younger generation to achieve the ambitions in the country. The actions range from student accommodation, extending grants for student workers and housing loans to health care and tax benefits. In this dissertation, we will focus on those that have an impact on access to credit for home purchases, such as the possibility of 100% financing for the first home, as well as the inhibition of payment of Municipal Property Transfer Tax (IMT) and Stamp Duty. These measures came into force on August 1, 2024.

In terms of financing and according to the prudential recommendation of the Bank of Portugal (2018), housing loans whose Loan-To-Value is greater than 90% cannot be granted. The consecutive growth in housing prices makes it increasingly difficult for young people to have their own capital to satisfy the remaining amount banks cannot lend. In this sense, the State's personal guarantee, which can reach up to 15% of the value of the property, covers the not financed portion. Therefore, it acts as a guarantor, which in the event of failure to pay monthly installments, the State is responsible for mobilizing this amount temporarily, subject to subsequent reimbursement. Decree-Law No. 44/2024, of July 10, establishes the conditions under which 100% financing can be applied, namely:

- The borrowers are between 18 and 35 years old and have their tax residence in Portugal;
- The borrowers have an income that does not surpass the 8th Personal Income Tax bracket;
- The borrowers do not own an urban building or any autonomous fraction of an urban residential building;
- The borrowers have never used the State’s personal guarantee under this law;
- The value of the transaction does not exceed 450 thousand euros; and
- The State's personal guarantee does not exceed 15% of the transaction value.

Currently, buying a home requires paying taxes on the entire transaction, in addition to the down payment. Furthermore, exemption from Municipal Property Transfer Tax and Stamp Duty has also been introduced. The target of this proposal is young people up to the age of 35, who purchase their first property for the purpose of their own permanent house, as long as its value is below the 4th IMT bracket. With this implementation, savings ranging from 5,578 euros (for properties of up to 200 thousand euros) to 14,686 euros (properties of 450 thousand euros) are expected. The annual budget impact is projected to be 100 million euros, and because IMT is a municipal tax, municipalities will receive compensation.

If the conditions for benefiting from the aforementioned measure are not met, the existing legal framework applies, namely prevention (PARI) and extrajudicial regularization of default situations (PERSI) in credit contracts. The first concept, PARI, is applicable if there has not yet been any default. Bank customers who, for some reason (illness, unemployment, among others) consider they may be at risk of nonpayment and alert the credit institution, can receive a document with information regarding their rights and duties. In this case, the bank must assess the financial capacity and propose solutions suited to their needs. According to data published by the Bank of Portugal, within the scope of housing and mortgage credit, an average of 123,400 PARI processes were initiated per month (23,161 in 2022) during the year 2023. This analysis includes the processes under the Decree-Law No. 80-A/2022, of November 25, which established additional criteria and duties for financial institutions to integrate credit contracts in PARI. In this scenario, 72.5% of the PARI processes initiated in 2023 fell under this extraordinary regime. In PERSI, the customer is already in arrears with the credit agreement and is entitled to negotiate payment solutions with the banking institution. In 2023, institutions reported the initiation of 76,984 PERSI processes (+36.5% compared to 2022), of which 46,351 correspond to housing and mortgage credit contracts. Of the 70,205 processes completed, in 63.5% (69.1% in 2022) the non-compliance was regularized.

Chapter 8 – Conclusion

In the face of rising interest rates and inflation, it is crucial to understand their impact on the reality of the economy, particularly with regard to housing. In fact, this accounts for a sizable portion of the family budget, being, for the vast majority, the most valuable asset in their portfolios. Furthermore, it constitutes a basic need and has a very high social weight. This issue gains even more emphasis considering the high exposure to housing credit of the Portuguese banking sector and the fact that it has previously been established non-compliance in this area has the power to trigger crises on a global scale.

This dissertation was driven by the premise of understanding whether the consecutive escalate in interest rates led to a growth in default situations in Portugal. For this purpose, data from 2008 to 2023 were used, in order to encompass the effects of crises and current times and, thus, allowing for comparisons. Contrary to what might be expected given the economic context, last year recorded the lowest mortgage loan overdue loan ratio in the last 15 years. Indeed, there were many lessons learned throughout this period, including the importance of adequate regulation and supervision, the risk of creating real estate bubbles and the interconnectivity between markets. Also noteworthy is the evolution of credit policies and measures implemented by the Government, notably in combating the housing crisis. Therefore, the financial system is considerably more robust, with greater restrictions and levels of monitorization in the granting of credit, as well as better prepared in mitigating negative effects. As the topic of default on housing credit is complex and influenced by a variety of circumstances, this study focuses on customer characteristics and contract terms. The identification of risk profiles, through predictive models and analysis of historical data, enables efficient credit management, protecting customers while also ensuring the stability and sustainability of the economy. The conditions proved to be most associated with the inability to pay the installments were the age of the borrowers, unexpected shocks in the personal sphere and professional situation. Additionally, the determinants affecting housing prices were also analyzed, since higher amounts result in increased monthly costs for families and greater difficulty in honoring their commitments. In Portugal, house values are overpriced, which makes them even more inaccessible. In this context, it was concluded that the Golden Visa Program and the interest of foreigners in the country are two major justifications for the real estate market being so out of adjustment. In addition, the fact that supply is scarce for the excessive level of demand also contributes to this imbalance.

In short, this thesis sought to comprehensively analyze the issue of default in housing credit, namely by characterizing the real estate market and the act of granting credit, as well as studying the factors most associated with this risk and the rise in the housing prices. The measures implemented for prevention were also subject of discussion. Although the Portuguese banking system has made progress in recent years, it is imperative to recognize that the risk of default on mortgage loans is a dynamic challenge that requires continuous adaptation.

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Appendices

Appendix 1 – Annual rate of change in house prices in the euro area

	Change compared with the same quarter of the previous year				
	Q1	**Q2**	**Q3**	**Q4**	**Mean**
Euro area	0.4%	-1.6%	-2.2%	-1.1%	-1.1%
EU	0.8%	-1.0%	-1.1%	0.2%	-0.3%
Belgium	3.7%	1.9%	0.9%	3.4%	2.5%
Bulgaria	9.5%	10.7%	9.2%	10.1%	9.9%
Czechia	0.9%	-2.9%	-3.5%	-1.0%	-1.6%
Denmark	-7.9%	-6.6%	-1.8%	2.5%	-3.5%
Germany	-6.8%	-9.6%	-10.1%	-7.1%	-8.4%
Estonia	9.2%	5.0%	3.8%	5.8%	6.0%
Ireland	5.1%	2.7%	1.4%	3.2%	3.1%
Greece	-	-	-	-	-
Spain	3.5%	3.7%	4.5%	4.3%	4.0%
France	2.9%	0.7%	-1.6%	-3.6%	-0.4%
Croatia	14.0%	13.7%	10.9%	9.5%	12.0%
Italy	1.0%	0.6%	1.7%	1.8%	1.3%
Cyprus	6.1%	3.6%	0.6%	1.6%	3.0%
Latvia	5.9%	5.4%	3.0%	1.0%	3.8%
Lithuania	13.1%	9.4%	8.7%	8.3%	9.9%
Luxembourg	-1.7%	-5.9%	-13.9%	-14.4%	-9.0%
Hungary	10.7%	5.6%	3.3%	3.3%	5.7%
Malta	6.6%	4.5%	4.6%	5.4%	5.3%
Netherlands	0.1%	-4.1%	-3.7%	0.1%	-1.9%
Austria	-0.2%	-2.8%	-5.4%	-1.8%	-2.6%
Poland	5.8%	7.0%	9.3%	13%	8.8%
Portugal	8.7%	8.7%	7.6%	7.8%	8.2%
Romania	4.6%	0.1%	4.8%	3.7%	3.3%
Slovenia	8.8%	7.4%	5.7%	6.8%	7.2%
Slovakia	7.6%	-1.9%	-3.8%	-1.1%	0.2%
Finland	-5.1%	-5.6%	-7.2%	-4.4%	-5.6%
Sweden	-6.9%	-6.8%	-4.2%	-2.9%	-5.2%
Iceland	15.8%	10.1%	2.7%	3.8%	8.1%
Norway	1.7%	1.9%	-0.5%	2.1%	1.3%
Switzerland	3.9%	2.4%	1.3%	1.3%	2.2%

Source: Eurostat